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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,253	12/16/2004	Estelle Lesellier	FR 020062	8258

24737 7590 09/24/2007
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER

THOMAS, MIA M

ART UNIT	PAPER NUMBER
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2624

MAIL DATE	DELIVERY MODE
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09/24/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/518,253

Applicant(s)

LESELLIER, ESTELLE

Examiner

Mia M. Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>see attached</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Suggestions

1. Regarding the word "Artefact";

Merriam-Webster's Online Dictionary (www.m-w.com) suggests that the word artefact is a British variant of the word *artifact*. It is suggested by Examiner that the word artefact be changed to artifact so as to avoid any loose interpretation of claim language and or detailed information contained in this instant application.

Claim Objections - 37 CFR 1.75(a)

2. The following is a quotation of 37 CFR 1.75(a):

The specification must conclude with a claim particularly failing to pointing out and distinctly claim the subject matter, which the applicant regards as his invention or discovery.

Claims 1,5,6, and 8 are objected to under 37 CFR 1.75(a), as failing to conform to particularly point out and distinctly claim the subject matter which application regards as his invention or discovery.

Regarding Claims 1,5,6, and 8 the term(s) "substantially larger"@ claim 1 line 7, "intended to" @ claim 5, line 28, "intended to" @ claim 6, line 2, "suitable for" @ claim 8, line 11 are all considered narrow language and is being interpreted as relative terms, which renders the claims indefinite in accordance with the interpretation of the claimed subject matter. The terms "substantially", "intended" and "suitable" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

How large is "substantially large?"

Which portion of the data processing method is "intended to" do, what form of the detection?

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How close is "suitably close" when measuring the data processing method with respect to claim 8?

Without a firm grasp of what constitutes "substantially large", "intended use" or "suitability" one cannot determine when or when not to apply a "a method of processing data pixels", e.g. as recited in claim 1. Those of ordinary skill in the art may well reasonably disagree on the degree of "sustainability", "intended use", and "suitability". Therefore, correction or clarification on the record is required.

Response to Amendment

3. This Office Action is responsive to the applicant's remarks received on 16 December 2004. Claims 1-9 remain pending. Examiner has entered the preliminary amendment regarding the claims in multiple dependencies so as to avoid additional filing fee(s).

Claim Rejections - 35 USC § 112.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claims 1, 5 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "card" is referring to "at least one card of discontinuity pixels". Accordingly, the term "card" is not defined in a distinct agreement with the drawings nor the specification. At page 4, line 5, the applicant describes the filtering operation with respect to optimal efficiency based on the processing of two cards EH and EV of the discontinuity pixels. After looking at the applicant's drawings and further into the specification, there is not clear definition of a card of discontinuity pixels. Appropriate correction is required.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs, which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

7. Claim 9 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 9 defines a computer program, embodying functional descriptive material. However, the claim does not define a computer-readable medium or computer-readable memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not

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necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on "computer-readable medium" or equivalent; assuming the specification does NOT define the computer readable medium as a "signal", "carrier wave", or "transmission medium" which are deemed non-statutory (refer to "note" below). Any amendment to the claim should be commensurate with its corresponding disclosure.

Note:

A "signal" (or equivalent) embodying functional descriptive material is neither a process nor a product (i.e., a tangible "thing") and therefore does not fall within one of the four statutory classes of § 101. Rather, "signal" is a form of energy, in the absence of any physical structure or tangible material.

Should the full scope of the claim as properly read in light of the disclosure encompass non-statutory subject matter such as a "signal", the claim as a whole would be non-statutory. In the case where the specification defines the computer readable medium or memory as statutory tangible products such as a hard drive, ROM, RAM, etc, as well as a non-statutory entity such as a "signal", "carrier wave", or "transmission medium", the examiner suggests amending the claim to include the disclosed tangible computer readable media, while at the same time excluding the intangible media such as signals, carrier waves, etc.

Priority

8. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US 6,259,823 B1) in combination with Nio et al (US 6,795,588 B1).

Regarding Claim 1:

Lee discloses a method of processing data corresponding to pixels of a sequence of digital images so as to detect a grid corresponding to blocking artifacts ("The present invention relates to data filtering, and more particularly, to a signal adaptive filtering method for reducing a blocking effect and ringing noise, and a signal adaptive filter suitable for the method." At column 1, line 9), said method comprising:

(and) a step of detecting blocking artefacts from the at least one card of discontinuity pixels, the method being characterized in that it comprises a step of searching, within said portion, a set of grid rows, a grid row having a density of blocking artefacts which is *substantially larger than* that of its neighboring rows (Refer to Figure 1, numeral 112, specifically numeral 116).

Lee does not specifically disclose a step of high-pass filtering a portion of a digital image, *intended to* supply at least one card of discontinuity pixels.

However, Nio in the same field of filtering blocking artifacts teaches:

a step of high-pass filtering a portion of a digital image (Refer to Figure 2, numeral 10 or 11), *intended to* supply at least one card of discontinuity pixels.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to utilize a "step of high-pass filtering a portion of a digital image (Refer to Figure 2,

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numeral 10 or 11), *intended to supply at least one card of discontinuity pixels*” as taught by Nio to the “method of processing data corresponding to pixels of a sequence of digital images so as to detect a grid corresponding to blocking artifacts” as disclosed by Lee because the step of high pass filtering the image data as taught by Nio with the method of processing image data as disclosed by Lee would allow the user to manipulate the processing data to sharpen or enhance the image data details.

Regarding Claim 2: Lee discloses a data processing method as claimed in claim 1, wherein the searching step comprises the sub-steps of:

selecting, in a row of the portion of the image, segments comprising a number of consecutive blocking artefacts which is larger than a predetermined first threshold (Refer to Figure 2; “...the pixel values of the corresponding filter window are filtered pixel by pixel by using predetermined second weighted values to generate a new pixel value if it is determined that edges are present.

Preferably, the global threshold value (T_g) is determined by: the equation represented at column 2, line 6.”) at column 1, line 65);

computing a blocking artefact level per row on the basis of values of pixels of the selected segments (Refer to Figure 1, numerals 114, and 116, specifically numeral 118; “...a global edge map generator for comparing the gradient data of each pixel output by the gradient operation unit with a global threshold value ($T_{sub.g}$) determined based on a quantization step (Q) to generate binary global edge map information; a local edge map generator for comparing pixel by pixel the gradient data output from the gradient operation unit with a local threshold value which is individually determined for each predetermined size block, to generate binary local edge map information...” at column 2, line 19);

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determining a grid row on the basis of a comparison of the blocking artefact levels of a current row and a set of neighboring rows (Refer to Figures 3a-3c).

Regarding Claim 3: Lee discloses a data processing method as claimed in claim 2, comprising a step of measuring the image quality, *intended to* add the blocking artifact levels of the different rows of the grid for the portion of the image (Refer to Figure 4, numeral 410).

Regarding Claim 4: Lee discloses a data processing method as claimed in claim 1, also comprising a step of validation, *intended to* determine whether a grid is present within the portion of the digital image if the number of grid rows found in said portion is higher than a second predetermined threshold ("The global edge map generator 114 receives the gradient data from the gradient operation unit 112 to generate global edge map information for each frame of image data (step 420). The global edge map information, $\text{edge}(i, j)$ for the pixel located at position i and j in the image data, is obtained by calculating an absolute gradient sum for each pixel of a frame of input image data and then comparing the absolute gradient sum with a global threshold value $T_{\text{sub.g}}$, as described in the following equation (1). (Aforementioned rejection made with reference to Equation (1) at column 3, line 42)... at column 3, line 33).

Regarding Claim 5:

Lee discloses a method of processing data corresponding to pixels of a sequence of digital images so as to detect a grid corresponding to blocking artifacts ("The present invention relates to data filtering, and more particularly, to a signal adaptive filtering method for reducing a blocking effect and ringing noise, and a signal adaptive filter suitable for the method." At column 1, line 9).

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Lee does not specifically disclose a data processing method wherein the high pass filtering step is intended to supply two cards of discontinuity pixels, one horizontal card and one vertical card. Nio teaches a data processing method as claimed in claim 1, wherein the high-pass filtering step is intended to supply two cards of discontinuity pixels, one horizontal card and one vertical card (For example, any of examples (1-4) at Figure 3 can be illustrated to present the vertical and horizontal cards of pixels as claimed).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to utilize the high-pass filtering step as taught by Nio wherein the high-pass filtering step is intended to supply two cards of discontinuity pixels, one horizontal card and one vertical card to the method of data processing pixels of sequence of digital images as disclosed by Lee because the high pass filtering step which provides the horizontal and vertical cards would create a independent and distinct means for calculating the high pass filter which would allow the user to create sharper more enhanced processing methods.

Regarding Claim 6:

Lee discloses a data processing method as claimed in claim 1, wherein the step of detecting blocking artefacts is *intended to* detect a first type (p1) of blocking artefacts and a second type (p2) of blocking artefacts from the at least one card of discontinuity pixels (Refer to Figure 4, numeral 440-460).

Regarding Claim 9:

Nio teaches a computer program product comprising a set of instructions which, when loaded into a circuit, cause said circuit to perform the method of processing digital images as claimed in claim 1 ("...the processing of the aforementioned parts may alternatively be performed through

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software with a DSP (digital signal processor) or the like, to attain effects similar to the above.”
at column 12, line 24).

11. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US 6,259,823 B1) in combination with Nio et al (US 6,795,588 B1) as applied to claim 1-6 above, and further in view of Inoue (US 6,172,770 B1).

Regarding Claim 6:

Lee discloses a step of detecting blocking artefacts from the at least one card of discontinuity pixels, the method being characterized with reference to Figure 1, numeral 112, specifically numeral 116).

Nio and Lee in combination do not specifically disclose the step of detecting blocking artefacts is *intended to* detect a first type (p1) of blocking artefacts and a second type (p2) of blocking artefacts from the at least one card of discontinuity pixels.

Inoue teaches a data processing method as claimed in claim 1, wherein the step of detecting blocking artefacts is *intended to* detect a first type (p1) of blocking artefacts and a second type (p2) of blocking artefacts from the at least one card of discontinuity pixels (Refer to Figure 12, numeral R1, R2, R3 and R4).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to add together the step of detecting the blocking artifacts as intended to detect two types of artifacts from a card of pixels as taught by Inoue to the step of detection as disclosed by Lee because the additional step of detection would allow the user to detect multiple forms of artifacts that may constitute a processing problem. The additional step of detection may allow the user to identify dust, color faults, noise and digital errors.

Regarding Claim 7:

Lee discloses a step of detecting blocking artefacts from the at least one card of discontinuity pixels, the method being characterized with reference to Figure 1, numeral 112, specifically numeral 116).

Nio and Lee in combination do not specifically disclose a step of correcting the blocking artefacts situated in the grid rows in accordance with their type (p1, p2).

Inoue teaches a data processing method as claimed in claim 6, comprising a step of correcting the blocking artefacts situated in the grid rows in accordance with their type (p1, p2) (Refer to Figure 2, numeral 46).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to add together the step of correcting the blocking artifacts as taught by Inoue with the step of detecting artifacts as disclosed by Lee because the additional step of correction would allow the user to manipulate all the data processed from the discontinuity cards and therefore the user would also have the most concentrated response for enhancing the images.

Regarding Claim 8:

Lee discloses a step of detecting blocking artefacts from the at least one card of discontinuity pixels, the method being characterized with reference to Figure 1, numeral 112, specifically numeral 116).

Nio and Lee in combination do not specifically disclose a television receiver comprising a processing device using the data processing method as claimed in claim 7...

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Inoue teaches a television receiver comprising a processing device using the data processing method as claimed in claim 7, suitable for detecting the grid rows within a sequence of digital images and for correcting the blocking artefacts situated in said rows, with a view to displaying corrected digital images on a screen of said receiver (Refer to Figure 1, numeral 24 "Image Output Device").

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to use an "image output device" such as a television receiver as taught by Inoue to the method of processing image data corresponding to pixels in sequence as taught by Lee in combination with Nio because the detection, correction, processing and the like are mostly encoded and decoded in accordance with block based coding techniques for example, MPEG and JPEG, therefore, it is common knowledge in the art to utilize an "image output device" such as a television receiver to display the corrected image data based on those block based encoding and decoding techniques.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Wong et al. "Fast Motion Estimation for Video Resolution Down-Conversion Using Spatial Variant Filter(s)", July 1999. IEEE Circuits and Systems, ISCAS '99, Proceedings for the 1999 IEEE International Symposium, Volume 4, pages 528-531.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mia M. Thomas whose telephone number is 571-270-1583. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on 571-272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mia M Thomas
Examiner
Art Unit 2624

MMT

A handwritten signature in black ink, appearing to be "B. Werner", enclosed within a large, irregular oval shape.

**BRIAN WERNER
SUPERVISORY PATENT EXAMINER**